IN THE CLAIMS:

Claims 67, 68, 103, and 104 are canceled; claims 51, 61-66, 69, 80-86, 97-102, 105, 113-115, 117-119, 122-124, and 129-131 are amended; and new claims 133-146 are added, as shown below:

51. (Amended) A method for producing a nuclear transfer unit having genomic DNA of one ungulate species and mitochondria of a different ungulate species, comprising:

(i) enucleating an ungulate oocyte;

(ii) inserting a differentiated ungulate donor cell, or the nucleus of said cell, into the oocyte under conditions suitable for the formation of a nuclear transfer unit so that a nuclear transfer unit is formed, wherein said oocyte and said differentiated cell are from different ungulate species;

(iii) activating the resultant nuclear transfer unit; and

(iv) culturing the activated nuclear transfer unit to produce a multicellular structure;

wherein said multicellular nuclear transfer unit develops into an ungulate animal having genomic DNA of one ungulate species and mitochondria of a different ungulate species upon being transferred into a female animal of the same species as the oocyte.

61. (Amended) The method of claim 51 wherein the differentiated donor cell and the recipient oocyte are from ungulate animals of the same subfamily.

62. (Amended) The method of claim 61 wherein the differentiated donor cell and the recipient oocyte are from bovine animals.

63. (Amended) The method of claim 51 wherein the differentiated donor cell is from Bos gaurus.

64. (Amended) The method of claim 51, wherein the oocyte is an ungulate selected from the group consisting of bovines, ovines, porcines, equines, caprines, and buffalo.

65. (Amended) The method of claim 64, wherein the oocyte is from a bovine.

66. (Amended) The method of claim 65, wherein the oocyte is from Bos taurus.

69. (Amended) The method of claim 62, wherein the differentiated donor cell is from Bos gaurus and the oocyte is from Bos taurus.

80. (Amended) The isolated embryonic cell of claim 79, which cell has genomic DNA of a first ungulate animal and mitochondria of a second ungulate animal that is of the same subfamily as the first ungulate animal.

81. (Amended) The isolated embryonic cell of claim 80, which cell has bovine genomic DNA and bovine mitochondria.

82. (Amended) The isolated embryonic cell of claim 81, which cell has genomic DNA of Bos gaurus and mitochondria of Bos taurus.

83. (Amended) An isolated embryonic cell which is not itself an embryo, which cell has genomic DNA of one ungulate species and mitochondria of a different ungulate species.

84. (Amended) The isolated embryonic cell of claim 83, which cell has genomic DNA of a first ungulate animal and mitochondria of a second ungulate animal that is of the same subfamily as the first ungulate animal.

85. (Amended) The isolated embryonic cell of claim 84, which cell has bovine genomic DNA and bovine mitochondria.

86. (Amended) A method for producing a nuclear transfer unit having genetically altered genomic DNA of one ungulate species and mitochondria of a different ungulate species, comprising:

(i) obtaining a differentiated ungulate donor cell, the genome of which is genetically altered by addition, modification, substitution, or deletion of one or more genes;

(ii) enucleating an ungulate oocyte;

(iii) inserting the genetically altered donor cell, or the nucleus of said cell, into the oocyte under conditions suitable for the formation of a nuclear transfer unit so that a nuclear transfer unit is formed, wherein said oocyte and said differentiated donor cell are from different ungulate species;

(iv) activating the resultant nuclear transfer unit; and

(v) culturing the activated nuclear transfer unit to produce a multicellular structure;

wherein said multicellular nuclear transfer unit develops into an ungulate animal having genetically altered genomic DNA of one ungulate species and mitochondria of a different ungulate species upon being transferred into female animal of the same species as the oocyte.

97. (Amended) The method of claim 86 wherein the differentiated donor cell and the recipient oocyte are from ungulate animals of the same subfamily.

98. (Amended) The method of claim 97 wherein the differentiated donor cell and the recipient oocyte are from bovine animals.

99. (Amended) The method of claim 98 wherein the differentiated donor cell is from Bos gaurus.

100. (Amended) The method of claim 86, wherein the oocyte is an ungulate selected from the group consisting of bovines, ovines, porcines, equines, caprines, and buffalo.

101. (Amended) The method of claim 100, wherein the oocyte is from a bovine.

102. (Amended) The method of claim 102, wherein the oocyte is from Bos taurus.

105. (Amended) The method of claim 98, wherein the differentiated donor cell is from Bos gaurus and the oocyte is from Bos taurus.

113. (Amended) The isolated cell of claim 112, which cell has genetically altered genomic DNA of a first ungulate animal and mitochondria of a second ungulate animal that is of the same subfamily as the first ungulate animal.

114. (Amended) The isolated cell of claim 113, which cell has genetically altered bovine genomic DNA and bovine mitochondria.

115. (Amended) The isolated cell of claim 114, which cell has genetically altered genomic DNA of Bos gaurus and mitochondria of Bos taurus.

117. (Amended) An isolated embryonic cell which is not itself an embryo, which cell has genetically altered genomic DNA of one ungulate species and mitochondria of a different ungulate species.

118. (Amended) The isolated embryonic cell of claim 117, which cell has genetically altered[, human] genomic DNA of a first ungulate animal and [non-human] mitochondria of a second ungulate animal that is of the same subfamily as the first ungulate animal.

119. (Amended) The isolated embryonic cell of claim 118, which cell has genetically altered bovine genomic DNA and bovine mitochondria.

122. (Amended) The cell of claim 121, which cell has genomic DNA of a first ungulate animal and mitochondria of a second ungulate animal that is of the same subfamily as the first ungulate animal.

123. (Amended) The cell of claim 122, which cell has bovine genomic DNA and bovine mitochondria.

124. (Amended) The cell of claim 123, which cell has genomic DNA of Bos gaurus and mitochondria of Bos taurus.

129. (Amended) The cell of claim 128, which cell has genetically altered genomic DNA of a first ungulate animal and mitochondria of a second ungulate animal that is of the same subfamily as the first ungulate animal.

130. (Amended) The cell of claim 129, which cell has genetically altered bovine genomic DNA and bovine mitochondria.

131. (Amended) The cell of claim 130, which cell has genetically altered genomic DNA of Bos gaurus and mitochondria of Bos taurus.

New claims 133-146 are added:

133. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 51.

134. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 61.

135. A bovine animal developed from a nuclear transfer unit produced by the method of claim 62.

136. A bovine animal developed from a nuclear transfer unit produced by the method of claim 63.

137. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 65.

138. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 66.

139. A bovine animal developed from a nuclear transfer unit produced by the method of claim 69.

140. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 86.

141. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 97.

142. A bovine animal developed from a nuclear transfer unit produced by the method of claim 98.

143. A bovine animal developed from a nuclear transfer unit produced by the method of claim 99.

144. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 101.

145. An ungulate animal developed from a nuclear transfer unit produced by the method of claim 102.

146. A bovine animal developed from a nuclear transfer unit produced by the method of claim 105.

REMARKS

This Reply is responsive to the Office Action dated August 28, 2002. Entry of the foregoing and reconsideration on the merits pursuant to 37 CFR 1.112 is respectfully requested.

Support for the Amendments of the Claims:

The claims are amended so that they are limited to methods and products wherein the differentiated donor cells and recipient oocytes are of different ungulate species; and to cells and cloned animals produced by the disclosed methods. Support for these claims is found, for example, at page 15, lines 16 to 23, which describes practicing the invention using donor cells and recipient oocytes of different ungulate species; in Example 2, which discloses